



Case report

HIV-negative drug addict diagnosed with AIDS and tuberculosis at autopsy: A case report and brief review of literature

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ABSTRACT

Human Immunodeficiency Virus (HIV) infection is a true plague and a major health concern globally. It is one of the most significant pandemics in recorded history. Despite worldwide efforts to fight the pandemic, and now with the re-emergence of tuberculosis, those clinicians, personnel performing autopsies and medical caregivers are again at risk in the work place, especially in developing countries. We describe a case where a drug abuser, whose addiction was concealed by his parents, died in hospital. He was tested HIV-negative there. A medical tangle ensued and forensic autopsy was carried out. Autopsy confirmed he was an intravenous drug addict and had tuberculosis. Post-mortem blood was positive for HIV antibodies and he was diagnosed with AIDS. Due to social stigmas, lack of knowledge or inefficient medical laboratory procedures etc, such type of cases can become a hazard to those attending the sick and to autopsy pathologists alike. We provide the case description, autopsy findings and review of pertinent literature.

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1. Introduction

The previous century was marked by a severe pandemic, the flu pandemic of 1918, which took the life of at least 50 million people in the ensuing years.¹ Today, we are still struggling with the human immunodeficiency virus (HIV)/Acquired Immunodeficiency syndrome (AIDS) pandemic which has become a significant health concern globally with an estimated number of more than 2 million deaths up to now. In 2008, about 33 million people were living with HIV worldwide.² In the early days of the AIDS epidemic, autopsy findings indicated that death in the majority of AIDS patients were attributed to opportunistic infection affecting the respiratory tract and nervous system. Although reports show that deaths from bacterial sepsis, CMV, MAC infection and toxoplasmosis declined, mortality from fungal infections, tuberculosis, encephalopathy, and causes unrelated to AIDS increased.³

HIV transmission is by sexual contact, intravenous drug abuse, maternal to fetal route or rarely through transfusion of infected blood or blood products. HIV infection is a dynamic process with pathological features that vary with the chronology of the disease.

Nowadays, though most countries have ready access to screening centers and retroviral treatment, factors such as extreme poverty, social stigma and lack of education can be obstacles to proper management of the disease.

We present the case of a drug addict who died in hospital and forensic autopsy was carried out because of a medical tangle between the relatives and the hospital. The relatives did not disclose the decedent's drug addiction and HIV test performed by the hospital was negative for viral antibodies. Autopsy proved both parties wrong. We also provide the pathological findings and a brief review of pertinent literature.

2. Case report

A 27-year-old Chinese man was taken to the local hospital due to high fever, oral ulcers, diarrhea and persistent cough. Those symptoms occurred repeatedly for the past few months. During the previous admission to the same clinic four months back, HIV testing was warranted because of suspicion that he was an intravenous drug addict, but the relatives denied the addiction and did not give consent. However, during this last admission, a test for HIV antibodies was performed after painstakingly convincing the relatives of its importance. The HIV-test result came out negative, to the relief of both relatives and treating physicians. The medical records mentioned that he had warts, fever, pneumonia, diarrhea, oral

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ulcers and that he was treated symptomatically. However, during the same night, the patient's health condition deteriorated, he developed Cheyne-Stokes breathing, became unconscious and died despite resuscitation attempts. The relatives requested a forensic autopsy on the ground of inadequate medical care by the hospital.

3. Autopsy findings

Autopsy was carried out the next day. The body was that of a cachexic adult male; body length was 168 cm. Ulcers were present on the left border of the upper lip. Pinpoint hemorrhage was scattered on the chest and abdomen. The skin of the four limbs had several sites with purplish spots and needle-puncture like wounds. The penile sulcus had warty projections in three locations. The urethral orifice appeared red and a pus-like liquid was present. Two abscesses were present in the diaphragm, measuring 4×2.5 cm and 2×2 cm respectively. The liver and spleen were enlarged and congested. The cut surfaces of the lungs, liver, spleen and kidneys had numerous small nodules measuring between 0.5 and 1.5 mm in diameter.

Microscopically, dispersed foci of caseous necrosis were present in the lungs, liver, spleen, and kidneys. Caseous material could be observed in the central zone of the foci and the surroundings were infiltrated by lymphocytes, monocytes, Langhans giant cells and epithelioid cells. Few germinal centres were present in the splenic corpuscles. Focal necrotic lesions surrounded by inflammatory cells were seen in the myocardium. Large numbers of neutrophils were observed in the mucosal layer of the stomach and intestines. No tuberculous lesions were seen in the brain and peritoneum. The pus-like liquid collected from the urethral orifice showed large numbers of inflammatory cells, mostly neutrophils, but no spermatozoa. Heart blood was collected and sent to two different laboratories for HIV testing and the results came back positive for HIV antibodies.

Toxicological analysis of femoral blood and urine did reveal trace amounts of amphetamine and 4-hydroxymethamphetamine which are derivatives of the drug of abuse 'methamphetamine'. No drugs or poisons were detected in the stomach content.

Cause of death was attributed to multiple organ failure due to systemic opportunistic infection and miliary tuberculosis complicated by AIDS.

4. Discussion

HIV infection is a true plague and a major health concern worldwide. It is estimated that 33.4 millions people globally have been infected to date. In China, estimation shows that by the end of 2007, approximately 700,000 were HIV positive and an estimated 85,000 Chinese have AIDS.² Despite tremendous efforts by organizations worldwide, personal, political, social and economic barriers compromise treatment and prevention.

In our case, the decedent came from a relatively poor family, was unemployed and the parents were almost illiterate. Investigation later disclosed that two of his brothers died some years back and they were suspected to have had tuberculosis. Autopsy revealed that the deceased was definitely a drug addict since he had multiple needle-puncture wounds distributed over the limbs' venous tracts and toxicology results were convincing. Confronted with the evidence, the relatives declared that he was indeed a drug abuser but concealed it because of social stigmas. The pathological findings and the family history of the deceased reveal that he had tuberculosis (miliary). He also presented with opportunistic infections, abscesses, diarrhea, cachexia and pathologies that suggested established AIDS. In fact, HIV infection and AIDS are known risk factors exacerbating tuberculosis in individuals previously infected with *mycobacterium tuberculosis*. The medical tangle which arose may be explained by the end-stage diseased condition of the

patient, lack of knowledge of the parents, and most importantly the 'false negative' HIV-test result from the hospital. False negative results do occur,⁴ though rarely, and this can have severe implications for patients, physicians and autopsy pathologists alike.

Autopsy studies were fundamental in the early description of AIDS in industrialized countries. In circumstances where systematic clinical investigation is not possible and where survival in hospital is brief, autopsies are the means of determining the range and prevalence of specific diseases. However, is not desirable to diagnose HIV/AIDS death in daily autopsy pathology practice because of the hazards it may present, especially in developing countries. Both HIV and tuberculosis can be contracted at autopsy. Although significantly contagious in the clinical setting, the risk of contracting HIV at autopsy is extremely low. But autopsy injuries are common and cuts to the unprotected hands occur even in experienced pathologists. It is a hazard to those involved at autopsy, especially when unsuspected and undiagnosed before death.⁵ Tuberculosis is re-emerging as a hazard and needs particular attention. In Brazil, an autopsy study on 92 cases of HIV-related deaths revealed that the majority had pulmonary infection with *mycobacterium* as the most frequent agent.⁶ In a review by Collins et al.,⁷ they mentioned that staffs of laboratories and autopsy rooms are between 100 and 200 times more likely than the general public to develop tuberculosis. In Japan, 17 workers at the Tokyo Medical Examiner's Office were infected with tuberculosis during the 22 years from 1973 to 1995 before protective measures were taken.⁸ Also, there is an assumption that once tissue is fixed in formalin, the risk for transmission and subsequent infection of mycobacteria is greatly reduced, but Gerston et al.,⁹ challenged this common idea in one of their papers. Moreover, in one case, mycobacterium tuberculosis was isolated in the lung tissue of an exhumed body which was buried for eight days.¹⁰

Precautions and pre-autopsy preparations are essential when a case of HIV/AIDS, with or without tuberculosis, is handled. False negative results, as in our case, and the 'window phase' of HIV infection must also be taken into consideration. These reminders become even more significant in developing countries. The best precautions against infection from HIV are the use of universal precautions with barrier protection, avoidance of sharp injuries through safe practice and using cut resistant gloves. The main risk with tuberculosis is from aerosolisation during autopsy and the use of 'high efficiency particulate air' (HEPA) filters offer protection in such cases. Respirators should also be worn in all cases of known or suspected AIDS. The work area and autopsy tools and autopsied bodies should be decontaminated after each case (usually using 1:10 solution of sodium hypochlorite)⁹ and bodies should be preferably cremated. Guerra et al.,¹¹ suggested that limited necropsy in HIV-positive bodies are comparable to a full necropsy with the advantage of decreasing the contagious risk, saving cost and time. We think that bodies in suspicious cases should be considered infectious until proven otherwise.

Conflict of interest

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